

Other features and advantages of the present invention using digital beam forming on ground are readily apparent from the following detailed description of the best mode for carrying out the invention when taken in connection with the accompanying drawings.

### **Brief Description of the Drawings**

5                   Figure 1 is a system diagram of a communication system according to the present invention.

Figure 2 is a high-level block diagrammatic view of the gateway station and payload platform having a digital beam forming circuit according to the present invention.

10                   Figure 3 is a diagrammatic view of the digital beam forming circuit according to the present invention.

Figure 4 is a plot illustrating interference of two beams.

### **Best Modes For Carrying Out The Invention**

15                   In the following description, the same reference numerals are used to identify the same components in the various views. Those skilled in the art will recognize that various other embodiments, structural changes and changes in measures may be made without departing from the scope of the invention.

20                   Referring now to Figure 1, a communications system 10 has a plurality of beams 12 that are illustrated as a plurality of circles 14 on the earth's surface. Circles 14 represent the footprint of a radiated beam onto the earth's surface. As will be described below the beams preferably move with the